Group I: Claims 70 and 71, drawn to a mutant cell and to a method for producing a polypeptide comprising cultivating the mutant cell, classified in class 435, subclasses 69.1 and 254.7; and

Group II: Claims 72-78, drawn to an isolated trichodiene synthase, classified in class 530, subclass 371.

As provided therein, Applicants provisionally elected with traverse the claims of Group II. Applicants confirm this election. Applicants reserve the right to file continuing applications directed to the non-elected subject matter.

II. Drawings

The Office Action objected to the drawings because parts of the top lines of Figs. 2A-2E are obscured by hole-punches. Applicants submit a new set of Figures to overcome the objection.

III. Specification

The Office Action objected to the specification because on nearly all of the pages, words on the top lines are obscured by hole-punches. Applicants submit a new copy of the specification to overcome the objection

IV. Priority

The Office Action suggests that the status of nonprovisional parent application(s) under a claim of priority under 35 U.S.C. 120 should appear in the first sentence of the specification following the title. Applicants have corrected the sentence on page 1 of the specification to state the status of the nonprovisional parent application(s).

For the foregoing reason, Applicants submit the objection has been overcome.

V. The Rejection of Claims 72-78 under 35 U.S.C. § 112, Second Paragraph

Claims 72-78 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite on several grounds.

Ground 1: The Office Action states that claim 72 is indefinite because it is not clear what is meant by an "allelic variant" of a sequence that is not naturally-occurring. Claim 72 has been canceled rendering the rejection moot.

Ground 2: The Office Action states that claim 72 is indefinite because it is not known how many substitutions, deletions, and/or insertions would be permitted for a variant to remain within the bounds of the claim. Claim 72 has been canceled rendering the rejection moot.

For the foregoing reasons, Applicants submit the new claims overcome the rejections under 35 U.S.C. § 112. Applicants respectfully request reconsideration and withdrawal of the rejection.

VI. The Rejection of Claims 77 and 78 under 35 U.S.C. § 112, First Paragraph

Claims 77 and 78 stand rejected under 35 U.S.C. § 112, first paragraph, "as containing subject matter which

was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention."

Specifically, the Office Action requested a declaration that *E. coli* NRRL B-30029 is readily available. As requested, Applicants enclose a Statement under 37 C.F.R. § 1.808 that *E. coli* NRRL B-30029 was deposited under the Budapest Treaty and all restrictions will be removed upon the granting of the U.S. patent.

The Office Action also suggests that it is apparent that the strain ATCC 20334 is required to practice the claimed invention, and thus the strain must be known and readily available to the public or obtainable by a repeatable method set forth in the specification. This rejection is respectfully traversed.

Under 37 C.F.R. 1.802(b), "[b]iological material need not be deposited, inter alia, if it is known and readily available to the public...." When the Patent Office adopted the rules on the deposit of biological materials, it issued comments on interpreting and applying the rules. See 1122 Official Gazette 223-38. The comments regarding the terms "known and readily available" in 37 C.F.R. 1.802(b) are set forth at page 232 as follows:

> Even where access to biological material is required to satisfy these statutory requirements, a deposit may not be necessary if access sufficient to satisfy these requirements is otherwise available.
>
> For example, applicant could show that the biological material is known and readily available to the public. The concepts of "known and readily available" are considered to reflect a level of public accessibility to a necessary component of an invention disclosure that is consistent with an ability to make and use the invention. To avoid the need for a deposit on this basis, the biological material must be both known and readily available - neither concept alone is sufficient....
>
> By showing that a biological material is known and readily available or by making a deposit in accordance with these rules, applicant does not guarantee that such biological material will be available forever. Public access during the term of the patent may affect the enforceability of the patent. Although there is a public interest in the availability of a deposited biological material during and after the period of enforceability of the patent, the examiner need not be unduly concerned about continued access to the public. Unless there is a reasonable basis to believe that the biological material will cease to be available during the life of the patent, the examiner should accept current availability as satisfying the requirement. The incentives provided by the patent system should not be constrained by the mere possibility that a disclosure that was once enabling would become non-enabling over a period of time through no fault of the patentee. *In re Metcalfe*, 410 F.2d 1378, 161 USPQ 789 (CCPA 1969) (emphasis added).

Applicants submit that the ATCC 20334 strain recited in the claims is "known and readily available" and, therefore, Applicants do not have to provide the assurances requested in the Office Action.

Applicants enclose herewith a copy of the web pages from the ATCC web site (www.atcc.org). The page about the ATCC (attached) states that "ATCC is a global nonprofit bioresource center that provides biological products, technical services, and educational programs to private industry, government, and academic organizations around the world. Our mission is to acquire, authenticate, preserve, develop, and distribute biological materials,

information, technology, intellectual property, and standards for the advancement, validation, and application of scientific knowledge." The page for ATCC 20334 (attached) shows that the strain is readily available and can be ordered from the ATCC for a fee.

Applicants submit that the pages establish that the ATCC 20334 strain is currently available and, therefore, that Applicants comply with 37 C.F.R. 1.802(b).

For the foregoing reasons, Applicants submit that the new claims overcome the rejections under 35 U.S.C. 112. Applicants respectfully request reconsideration and withdrawal of the rejections.

VII. The Rejection of Claims 72-78 under 35 U.S.C. § 112, First Paragraph

Claims 72-78 stand rejected under 35 U.S.C. § 112, first paragraph, "as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention." The Office Action states:

> Since the disclosure fails to describe the common attributes or characteristics that identify members of the genus, and because the genus is highly variant in structure and in function, SEQ ID NO:2 alone is insufficient to describe the genus. One of skill in the art would reasonably conclude that the disclosure fails to provide a representative number of species to describe the genus. Thus, applicant was not in possession of the claimed genus.

This rejection is respectfully traversed.

The instant invention is directed to isolated trichodiene synthases comprising the amino acid sequence of SEQ ID NO:2, or a fragment thereof that has trichodiene synthase activity, and isolated trichodiene synthases obtained from a *Fusarium venenatum* strain having an amino acid sequence which have at least 97% identity with SEQ ID NO. 2, or a fragment thereof that has trichodiene synthase activity.

The Office Action suggests that the specification fails to describe in sufficient detail the essential elements of the trichodiene synthases present in the genus. Applicants assert that the specification describes the claimed invention with sufficient relevant identifying characteristics, such that a person skilled in the art would recognize that Applicants had possession of the claimed invention at the time of filing.

Applicants have provided a detailed written description on how to isolate and identify trichodiene synthases of the claimed invention. Applicants detail on page 22, line 17, to page 29, line 23, of the specification, instructions for performing standard Southern hybridization under various stringency conditions to identify nucleic acids encoding such trichodiene synthases from other strains, whether of the same or different genera or species. In short, the hybridization methods describe the use of specific probes in enabling detail for identifying other trichodiene synthase genes which hybridize under various stringency conditions with the probes. The probes described in the specification are (i) nucleotides of SEQ ID NO:1, (ii) a cDNA sequence contained in the nucleotides of SEQ ID NO:1, and (iii) a complementary strand of (i) or (ii). One of ordinary skill in the art would recognize that the use of such probes under various stringency conditions allows the identification of other trichodiene synthase genes which are closely related

or essentially identical to the gene contained in SEQ ID NO:1. For example, Applicants have provided details in Examples 2 and 3 for probing a genomic DNA library of a *Fusarium venenatum* strain.

Applicants also detail on page 21, lines 24-30, of the specification, instructions for determining the degree of identity between two amino acid sequences by the Clustal method (Higgins, 1989, *CABIOS* 5: 151-153) using the LASERGENE™ MEGALIGN™ software (DNASTAR, Inc., Madison, WI) with an identity table and the following multiple alignment parameters: Gap penalty of 10 and gap length penalty of 10. Pairwise alignment parameters are Ktuple=1, gap penalty=3, windows=5, and diagonals=5. Percent identity is determined by a direct consecutive comparison of the amino acids of the polypeptide corresponding to the amino acids of a reference polypeptide, *i.e.*, the amino acid sequence of SEQ ID NO:2 of the claimed invention. It is well known in the art that a polypeptide that has 97% identity on the amino acid level to a reference polypeptide, e.g., SEQ ID NO:2, will have essentially the same inherent properties as the reference polypeptide.

One of ordinary skill in the art would further recognize that amino acid changes of SEQ ID NO:2 of a minor nature could be made, naturally or recombinantly, that do not change the inherent properties of the polypeptide of SEQ ID NO:2. Such amino acid changes include, for example, conservative amino acid substitutions that do not significantly affect the folding and/or activity of the protein; and small deletions, typically of one to about 30 amino acids. Such conservative substitutions are, for example, within the group of basic amino acids (arginine, lysine and histidine), acidic amino acids (glutamic acid and aspartic acid), polar amino acids (glutamine and asparagine), hydrophobic amino acids (leucine, isoleucine and valine), aromatic amino acids (phenylalanine, tryptophan and tyrosine), and small amino acids (glycine, alanine, serine, threonine and methionine). Amino acid substitutions which do not generally alter the specific activity are known in the art and are described, for example, by H. Neurath and R.L. Hill, 1979, *In, The Proteins*, Academic Press, New York. The most commonly occurring exchanges are Ala/Ser, Val/Ile, Asp/Glu, Thr/Ser, Ala/Gly, Ala/Thr, Ser/Asn, Ala/Val, Ser/Gly, Tyr/Phe, Ala/Pro, Lys/Arg, Asp/Asn, Leu/Ile, Leu/Val, Ala/Glu, and Asp/Gly as well as these in reverse. It would not be surprising to one skilled in the art that a protein containing, for example, 100 amino acids could easily be modified by making 3 conservative substitutions without changing the inherent functional properties of the protein.

In the instant case, claims limited to the trichodiene synthase of SEQ ID NO:2 would not adequately protect the inventors. Based on the teachings of the present application, one skilled in the art could find another trichodiene synthase having essentially the same properties of the trichodiene synthase of SEQ ID NO:2 and thereby attempt to circumvent the literal scope of Applicants' patent rights based on any of the circumstances described above.

Applicants submit that the information disclosed in the specification combined with the knowledge of the art provides sufficient guidance to one of ordinary skill in the art to isolate such trichodiene synthases from other strains. The written description as a whole is sufficient to evidence possession of the claimed nucleic acid sequences because the claimed nucleic acid sequences are defined by relation to the structure of the sequence of SEQ ID NO:1 as well as the inherent properties of the polypeptide encoded by the nucleic acid sequences of SEQ ID NO:1. Thus,

there is sufficient written description in the specification to inform the skilled artisan that Applicants were in possession of the claimed trichodiene synthases at the time the application was filed.

For the foregoing reasons, Applicants submit that the new claims overcome the rejections under 35 U.S.C. § 112, first paragraph. Applicants respectfully request reconsideration and withdrawal of the rejection.

VIII. The Rejection of Claims 72, 73, and 76 -under 35 U.S.C. § 102

Under 35 U.S.C. § 102(b), claims 72, 73, and 76 stand rejected as being anticipated by Hohn *et al.* (*Molecular Plant-Microbe Interactions* 5: 249-256, 1992); claims 72 and 76 stand rejected as being anticipated by Hohn *et al.* (*Gene* 79: 131-138, 1989); claims 72 and 76 stand rejected as being anticipated by Proctor *et al.*. (*Molecular Plant-Microbe Interactions* 4: 593-601, 1995); and claims 72 and 76 stand rejected as being anticipated by Trapp *et al.* (*Molecular and General Genetics* 257: 421-432, 1998). These rejections are respectfully traversed.

Under the standard required for anticipation under 35 U.S.C. § 102, the cited prior art reference is required to disclose every element of the claimed invention. *Lewmar Marine Inc. v. Barient Inc.*, 3 USPQ2d 1766 (Fed. Cir. 1987).

Hohn *et al.* (*Molecular Plant-Microbe Interactions* 5: 249-256, 1992) disclose a trichodiene synthase from *Gibberella pulicaris* with a 98.8% query match with SEQ ID NO:2. The Office Action states that the "trichodiene synthase of Hohn *et al.* is a variant of SEQ ID NO:2 comprising a substitution, deletion, and/or insertion of one or more amino acids." However, Hohn *et al.* do not disclose the isolated trichodiene synthase of SEQ ID NO:2, or a fragment thereof that has trichodiene synthase activity, or an isolated trichodiene synthase obtained from a *Fusarium venenatum* strain having an amino acid sequence which has at least 97% identity with SEQ ID NO. 2, or a fragment thereof that has trichodiene synthase activity, as claimed herein.

Hohn *et al.* (*Gene* 79: 131-138, 1989) disclose the isolation and nucleotide sequence of a trichodiene synthase gene from *Fusarium sporotrichoides*. The Office Action states that the "trichodiene synthase of Hohn *et al.* is a variant of SEQ ID NO:2 comprising a substitution, deletion, and/or insertion of one or more amino acids." However, Hohn *et al.* do not disclose the isolated trichodiene synthase of SEQ ID NO:2, or a fragment thereof that has trichodiene synthase activity, or an isolated trichodiene synthase obtained from a *Fusarium venenatum* strain having an amino acid sequence which has at least 97% identity with SEQ ID NO. 2, or a fragment thereof that has trichodiene synthase activity, as claimed herein.

Proctor *et al.* disclose a trichodiene synthase from *Giberella zeae* which has a 91.2% query match with SEQ ID NO:2. The Office Action states that the "trichodiene synthase of Proctor *et al.* is a variant of SEQ ID NO:2 comprising a substitution, deletion, and/or insertion of one or more amino acids." However, Proctor *et al.* do not disclose the isolated trichodiene synthase of SEQ ID NO:2, or a fragment thereof that has trichodiene synthase activity, or an isolated trichodiene synthase obtained from a *Fusarium venenatum* strain having an amino acid sequence which has at least 97% identity with SEQ ID NO. 2, or a fragment thereof that has trichodiene synthase

activity, as claimed herein.

Trapp *et al.* disclose a trichodiene synthase from *Myrothecium roridum* with a 74.4% query match with SEQ ID NO:2. The Office Action states that the "trichodiene synthase of Trapp *et al.* is a variant of SEQ ID NO:2 comprising a substitution, deletion, and/or insertion of one or more amino acids." However, Hohn *et al.* do not disclose the isolated trichodiene synthase of SEQ ID NO:2, or a fragment thereof that has trichodiene synthase activity, or an isolated trichodiene synthase obtained from a *Fusarium venenatum* strain having an amino acid sequence which has at least 97% identity with SEQ ID NO. 2, or a fragment thereof that has trichodiene synthase activity, as claimed herein.

For the foregoing reasons, Applicants submit that the new claims overcome the rejections under 35 U.S.C. § 102. Applicants respectfully request reconsideration and withdrawal of the rejections.

IX. Conclusion

In view of the above, it is respectfully submitted that all claims are in condition for allowance. Early action to that end is respectfully requested. The Examiner is hereby invited to contact the undersigned by telephone if there are any questions concerning this amendment or application.

Respectfully submitted,

Date: September 28, 2001

Robert L. Starnes, Reg. No. 41,324
Novozymes Biotech, Inc.
1445 Drew Avenue
Davis, CA 95616-4880
(530) 757-8100

Attorney Docket No.: 5563.210-US PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Royer *et al.*

Serial No.: 09/710,760 Group Art Unit: 1636

Filed: November 10, 2000 Examiner: Gansheroff, L.

For: Methods For Producing Heterologous Polypeptides In Trichothecene-Deficient Filamentous Fungal Mutant Cells

VERSION WITH MARKINGS TO SHOW CHANGES MADE

Commissioner for Patents
Washington, DC 20231

Sir:

Below is a marked-up version of the amendments made in the accompanying amendment.

IN THE SPECIFICATION:

At page 1, amend lines 9-11 to read as follows:

Cross-Reference to Related Applications

This application is a divisional of ~~pending~~ U.S. application Serial No. 09/316,080 filed on May 20, 1999, now U.S. Patent No. 6,180,366, which claims priority from U.S. application Serial No. 09/082,217 filed on May 20, 1998, now abandoned, which applications are fully incorporated herein by reference.

Respectfully submitted,

Date: September 28, 2001

Robert L. Starnes, Reg. No. 41,324
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You may continue your word search on Fungi, Yeasts, & Yeast Genetic Stock by typing in your search criteria below or go back to the Fungi, Yeasts, & Yeast Genetic Stock menu and begin a new search. To choose another collection, go back to the main menu by clicking on "search catalogs" above. For complex searches, using boolean operators, the following characters must be used: **&** (for AND), **|** (for OR), **^** (for AND NOT).An asterisk (*) is used as the wildcard. For more information please review the Search Help.

#7

ATCC & 20334 Word Search Clear Search

For query options, please read the search help.

Fungi, Yeasts, & Yeast Genetic Stock	
ATCC Number:	**20334** order this item
Organism:	*Fusarium venenatum* Nirenberg deposited as *Fusarium graminearum* Schwabe, anamorph
Designation:	I 0/5 [A 3/5; IMI 145425; NRRL 26139]
Depositors:	RHM Res., Ltd.
History:	ATCC <<-- Depositor <<-- G. Scammell
Subcollection:	Fungi
Isolation:	soil, United Kingdom
Applications:	transformation host [RF27146] produces: alkaline protease [RF26333] produces edible mycoprotein [RF12677] [RF12678]
Descriptions:	taxonomy [RF49476]
References:	RF12677: Solomons GL and Scamml GW. Production of edible protein substances. U.S. Pat. 3,937,654 dated Feb. 10, 1976 RF12678: Towersey PJ et al. Production of edible protein containing substances. U.S. Pat. 3,937,693 dated Feb. 10, 1976 RF26333: Milchwissenschaft 47: 147-148, 1992 RF27146: Royer JC et al. Fusarium graminearum A 3/5 as a novel host for heterologous protein production. Bio-Technology 13: 1479-1483, 1995 PubMed: 98299936 RF49476: O'Donnell K et al. Molecular phylogenetic, morphological, and mycotoxin data support reidentification of the Quorn mycoprotein fungus as Fusarium venenatum. Fungal Genet. Biol. 23: 57-67, 1998 PubMed: 98162098
Propagation:	**ATCC** medium: 323 Malt agar medium Temperature: 30C
Patent Statement:	This material is cited in a U.S. and/or other Patent and may not be used to infringe the patent claims.
BioSafety Level:	1
Required Forms:	USDA permit PPQ-526
Shipped:	freeze-dried
Price:	$140.00
Revised :	Dec 29, 2000

Pricing Note:
Prices are quoted in U.S. dollars and apply to all for-profit companies and all institutions outside the U.S. and Canada except those in Europe, Japan, Korea and Taiwan. Customers in Europe, Japan, Korea and Taiwan must contact their local distributors for pricing information. A discount of 20% off list price is offered to nonprofit institutions in the U.S. and Canada for most cultures.

Cultures special ordered as test tubes, stabs or flasks, carry an additional laboratory fee of $75.00 each. Minimum invoicing is $45.00. Orders received for lesser amounts will be invoiced at the minimum. Terms: Net 30 from date of invoice. NO COD orders or Letters of Credit accepted. ATCC Accepts VISA, MasterCard and American Express.

Shipping Charges
All materials are shipped FOB Manassas, freight prepaid via carrier of our choice and added to your invoice. Packaging is extra.

All ATCC fees for cultures and services are subject to change without notice.

Questions or Comments?

About ATCC

Mission
ATCC is a global nonprofit bioresource center that provides biological products, technical services, and educational programs to private industry, government, and academic organizations around the world. Our mission is to acquire, authenticate, preserve, develop, and distribute biological materials, information, technology, intellectual property, and standards for the advancement, validation, and application of scientific knowledge.

History
ATCC was established in 1925 when a committee of scientists recognized a need for a central collection of microorganisms that would serve scientists all over the world. The early years were spent at the McCormick Institute in Chicago until the organization moved to Georgetown University in Washington, D.C., in 1937. As research in the biosciences expanded, ATCC began to diversify its holdings, and as the collections grew ATCC occupied a series of sites, each providing more storage space. ATCC moved to its current state-of-the-art laboratory in 1998.

Facility
Our 106,000-square-foot facility has nearly 35,000 square feet of laboratory space with a specialized air handling system and Biosafety Level 2 and 3 containment stations. The repository area houses 8,200 square feet of storage space, which includes 55 ultra-low mechanical freezers and space for 65 vapor-phase liquid nitrogen freezers. A multi-level security system is in place throughout the facility featuring card access and continuous in-person and electronic monitoring of critical building and equipment functions.

ATCC also occupies space in a nearby building shared with George Mason University. Research laboratories and bioinformatics staff are located there.

Governance
ATCC is governed by a Board of Trustees composed of 14 members drawn equally from scientific leaders and the community at large who advise the president on organizational business matters. A Board of Scientific Directors composed of representatives from affiliated scientific societies advises the collections.

- Links to affiliated societies

Status
ATCC is a nonprofit 501(c)(3) organization. Contributions are tax deductible. (SIC Code #2836 - Biological Products, excluding

diagnostic substances)

ATCC
P.O.Box 1549
Manassas, VA 20110 USA
(703) 365-2700
E-mail news@atcc.org

Back up | Home

American Type Culture Collection

SEARCH CATALOGS | SITE MAP | CONTACT US

A Global Bioresource Center

Patent Depository

| Budapest Form BP/1 | Non-Budapest Form 34 |
| Patent Virus Form |

Note: .pdf documents can be read in Adobe Acrobat Reader.

The patent laws of the United States and most other countries require an inventor who wishes to obtain a patent to provide the patent office with 1) a full disclosure of the invention, including the manner and process for making and using it which would enable a person skilled in the art to practice the invention; and 2) a disclosure of the best mode for practicing the invention (35 USC 112). If undue experimentation is required to practice an invention successfully, the disclosure is deemed by the patent office to be insufficient. In cases where a novel microorganism is involved, the patent office traditionally requires the deposit of a sample with a recognized patent depository in order to meet the above disclosure requirements.

The ATCC accepted its first deposit for patent purposes in 1949, long before depositing was a formal requirement of any patent office, and the depository currently includes more than 20,000 strains of biological material.

Budapest Treaty

ATCC was approved on January 31, 1981, as the first International Depository Authority (IDA) under the International Budapest Treaty for deposits to meet patent office requirements in many countries. All countries signatory to the Budapest Treaty

must recognize the deposit of biological material with any IDA.

The patent office in every country except Taiwan accepts deposits made in the ATCC to satisfy deposit requirements for patent purposes.

The following is a list of countries signatory to the Budapest Treaty, current as February 2000. More countries may accede to the Budapest Treaty each year.

- Australia
- Austria
- Belgium
- Bulgaria
- Canada
- China
- Cuba
- Czech Republic
- Denmark
- Estonia
- Finland
- France
- Germany
- Greece
- Hungary
- Iceland
- Israel
- Italy
- Japan
- Latvia
- Liechtenstein
- Lithuania
- Monaco
- Netherlands
- Norway
- Philippines
- Poland
- Portugal
- Republic of Korea
- Republic of Moldova
- Russian Federation
- Singapore
- Slovakia
- Slovenia
- South Africa
- Spain
- Sweden
- Switzerland
- Tajikistan
- Trinidad & Tobago
- Turkey
- Ukraine
- United Kingdom

- United States
- Yugoslavia

Biological Materials Accepted For Patent Purposes

ATCC accepts the following biological material for patent purposes: algae, animal viruses, bacteria, bacteriophages, cell lines, cloned genes, embryos, filamentous fungi, hybridomas, plant tissue cultures, plant viruses, purified DNA, protozoa, recombinant DNA materials (plasmid and phage vectors, libraries, etc.), seeds, and yeasts.

Regulatory Compliance

To assure that ATCC is aware of all characteristics associated with patent deposits that may impact regulatory compliance in their handling, storage and distribution, the following information is required for each item deposited. This information may be included on the patent deposit form or appended as necessary.

- Microorganisms: (bacteria, fungi, protozoa, etc.): The complete scientific name including genus and species, and the source of the material. The source of the material includes both the source of isolation (human, animal, plant, etc.) and the geographical location (U.S., France, etc.).

- Viruses: The name of the virus, whether it is a plant or animal virus, and the source including geographic location.

- Cell lines: The species of origin, such as human, mouse, monkey (type of monkey), etc., geographical source of isolation, and any known hazards associated with the line (HIV, EBV, etc.).

- Genetic materials: The name of the organism from which a vector, clone or library is derived. For clones and constructs the source of the DNA insert must be identified by species (e.g., human, mouse) or by scientific name if a microorganism or virus. When the source of the DNA is a microorganism or virus please provide the name of the gene and the identity of the host organism.

- Miscellaneous items: (seeds, embryos, insect eggs, etc.): The common name and scientific name of the source of the deposit, and the geographical source.

- Mixed cultures and consortia: Each component of the mixture must be identified.

Amount Of Biological Material To Deposit

- Microorganisms, e.g., bacteria (either containing a plasmid or not containing a plasmid)bacteriophages, fungi, algae,

east, and protozoa: 25 frozen or fre -dried samples (0.5 ml each)

- Mixed cultures and consortia: 25 frozen or freeze-dried samples (0.5 ml each).
- Cell lines and hybridomas:[1] 25 frozen samples (2 - 6 million cells each).
- Multiple sequences:[2] 25 vials (100 ng each).
- Plasmids and vectors not in host: (e.g., purified DNA, libraries, and associated rDNA materials): 25 vials (100 ng each).
- Animal:[3] and plant viruses 25 frozen or freeze-dried samples (1 ml each).
- Embryos:[4] 25 frozen samples (12 embryos constitute one sample).
- Plant tissue cultures: 25 frozen samples.
- Seeds: 2500 seeds (100 labeled packets of 25 seeds each).

[1] PCR-based mycoplasma testing required on all cell lines and hybridomas.
[2] Ten sequences maximum per deposit accepted - no exceptions.
[3] Animals or equipment needed - quoted price.
[4] Please contact ATCC before sending embryos.

In the case of embryos, viruses, cell cultures, purified plasmids or vectors, consortia, mixed cultures and seeds, it is the responsibility of the depositor to furnish sufficient quantity for the specified period of time. In most instances, the ATCC will not replicate this type of material.

In the case of seeds, effective January 1, 1990, the United States Patent and Trademark Office (USPTO) Rules indicate that the USPTO will consider 2500 seeds to be a minimum number in the normal case, but will provide an applicant with an opportunity to provide justification as to why a lesser number would be suitable under the circumstances of a particular case. It is the depositor's (applicant's) responsibility to justify to the USPTO the reason for depositing less than 2500 seeds. In no case will ATCC accept fewer than 625 seeds (25 packets).

Depositors are urged to supply frozen or freeze-dried material. However, when possible, ATCC will accept test tubes or other actively growing material, and preserve it by freezing or freeze-drying at an additional fee of $500 per deposit. When ATCC preserves the material, a sample is returned to the depositor for verification of properties. However, if the deposited material is viable but not acceptable (i.e., properties altered), a new deposit must be made, and the original deposit date is void. Depositors are urged to supply frozen or freeze-dried material prepared in their laboratory to alleviate the possibility of this occurring.

If a culture or other biological material should become nonviable

or b[redacted]estroyed during the effective term o[redacted]e deposit, it is the responsibility of the depositor to replace it with viable material. As long as the initial deposit was viable, and the new deposit is received within three months of receipt of notification from the IDA (Article 4 of the Budapest Treaty), the original deposit date is kept for acceptable replacement deposits.

Certificate Of Deposit

A certificate of deposit and viability (form BP 4/9) is provided to the depositor immediately after the material is tested and found viable. A Patent Deposit number is assigned at this time. A deposit date is set as the date ATCC receives viable material.

If the material is found nonviable, ATCC notifies the depositor and follows with a certificate of nonviability (form BP/9). If the material is found nonviable, there is no deposit. In this case, a deposit date is not issued, and no Patent Deposit number is assigned.

Replacement Deposits

The Budapest Treaty permits acceptable replacement of a deposit which was originally found viable by a depository and later became nonviable, so long as the replacement 1) is within three months from the date that notice of nonviability was received, and 2) has the same characteristics as the original deposit. In this case, the deposit retains the same Patent Deposit number and deposit date.

However, for biological material that was originally viable and later found to have different characteristics than those originally defined, the Budapest Treaty makes no provisions for replacements. In this case, a supplemental deposit may be made, and a new deposit date and number will be assigned. All requesters of the original deposit may be notified of the supplemental deposit and given a choice as to which to purchase, as long as both deposits are freely available.

Time Required For Testing Viability

Microorganisms and cell lines may require up to 10 days for viability testing. Viruses, both animal and plant, and plant tissue cultures can require as long as 3 months, or longer in exceptional cases.

ATCC is required to perform PCR-based mycoplasma tests on all cell lines and hybridomas deposited for patent purposes. The result of this test will not affect the deposit status. Test results will be sent under separate cover.

ATCC strives to expedite processing of every deposit. ATCC will notify the depositor of the ATCC number assigned immediately after a deposit is found viable.

Existing ATCC Materials

Only the original depositor of patent material with the ATCC may convert their deposit to meet the requirements of the Budapest Treaty. Viability of the deposit must be confirmed, a form completed and the usual fee paid. The fee is the same as for new deposits, but if the fee for patent storage is already paid, it is not charged again. For deposits made before January 1, 1981, a deposit date of January 1, 1981 (the date ATCC was recognized as an International Depository Authority), becomes the deposit date for Budapest Treaty purposes. Deposits made after January 1, 1981, have a deposit date of the date of receipt of the deposit, provided viability is confirmed. Deposits under the Budapest Treaty also meet USPTO requirements.

A culture currently in an ATCC collection which is not a patent deposit can be purchased by a customer and transferred to the Patent Depository to satisfy USPTO and/or Budapest Treaty requirements. The depositor must complete and submit a BP/1 form as an original deposit. The transferred culture receives a new Patent Deposit number and new deposit date. Current patent deposit fees apply.

Availability Of Deposits

The patent deposit rules of a country determine the requirement for making deposited materials available. Availability requirements may differ in the patent offices of various countries, and the requirement for availability is determined by the rules in the country in which the patent application is filed.

Generally, availability of deposited material is required only after the issuance of a pertinent patent. Prior to that time, the deposit need only be made available to a requester if 1) the Commissioner of the USPTO (in accordance with 35 USC 122) issues a decision to release such deposit; 2) the patent office of another country issues such a decision to release the deposit to a particular requester; or 3) the original depositor requests in writing that the deposit be released to a particular requester.

Although in the United States availability of the deposited material is required only after the issuance of a pertinent patent, in Europe availability is made possible with European Patent Office (EPO) approval upon publication of the patent application. The requester must agree to use the biological material for experimental purposes only, and not to make the material available to a third party before the application is refused or withdrawn, or the expiration of any patent granted. There is also an option during the European patent filing process by which an inventor may choose, for a certain period of time, to have the biological material made available only through an expert.

It is the responsibility of the depositor to inform ATCC of the issuance of pertinent patents. ATCC urges depositors to diligently inform us when the patent issues and which deposits to release. When ATCC learns that a patent has issued, the depositor will be notified in writing that deposited items contained in the patent will be released unless instructions to the contrary are received within 30 days of notification.

For To Complete

Form BP/1 must be completed for deposits to meet the requirements of the Budapest Treaty.

Form 34 must be completed for all other patent deposits. It is not necessary to complete Form 34 if you complete the Budapest Treaty BP/1 form. If both forms are completed, the BP/1 form supersedes the Form 34.

If depositing a virus, the additional information form must accompany the deposit form.

Note: .pdf documents can be read in Adobe Acrobat Reader.

Permit Requirements

All cell lines (including hybridomas), viruses, plant tissue cultures, and some seeds received from outside the United States require an import permit from the U.S. Department of Agriculture (USDA). A Public Health Service (PHS) permit, available from the Centers for Disease Control and Prevention (CDC), is needed for importation of agents infectious to humans.

The USDA may require safety testing by USDA laboratories for some cell lines, hybridomas, and viruses before importation into the United States to ensure that no foot-and-mouth disease or other extraneous viruses are introduced into the United States. The USDA performs in vitro testing of cells from Japan, Australia and Great Britain at a quoted price. In vivo tests are performed on cells and viruses from all other countries for a quoted price. The USDA does permit up to four cell lines, hybridomas or viruses to be tested in one in vivo test, which reduces the per item cost for testing. In many instances the USDA decides a permit is not necessary, but application still must be made. **DO NOT SEND** material until the USDA has made a decision.

Upon notification of your intention to deposit a culture with ATCC, we can assist you in obtaining the appropriate permits. The permit application forms will be forwarded to you, along with an agreement to pay all fees associated with obtaining a permit. ATCC will apply for the permit and will advise the depositor when the permit is received.

Four to six weeks should be allowed to obtain a permit from the USDA. **Do not send the cultures until the permit is issued.**

Shipping Requirements

The depositor is ultimately responsible for the shipment of deposits to the ATCC and compliance with all applicable government regulations for the packaging and movement of the material.

To ensure your material arrives safely and is handled appropriately, the following guidelines should be followed. When packaging vials, put all similarly labeled vials together in the package. If glass vials are being shipped, make sure that the

vials are separated from each other by dividers or packing material to prevent breakage of the vials. The material should be clearly identified and the designation on the vial labels should agree with the descriptions on the required documentation. When shipping frozen material, use enough dry ice in an insulated shipping container to ensure the material is adequately frozen upon arrival at ATCC, taking into account any delays in transit.

Interim Storage

Timely arrival of patent deposit material at ATCC is critical to establishing the desired deposit date. Reliance on delivery services to transport the material to ATCC on time, and in a viable state, is risky. Therefore, through our interim storage service, material intended for patent deposit can be placed into a safekeeping deposit at ATCC until the intended date of patent deposit. While in safekeeping the material will be handled under the same terms and conditions of propriety and confidentiality as other safe deposit material (see below). When a patent deposit date is desired, the material in interim storage can be converted to a patent deposit simply by notifying ATCC. Viability testing of material received for interim storage can be performed upon receipt, and although retesting is necessary when converted to patent deposit, this can provide insurance that the earliest possible patent deposit date will be obtained. The interim storage service provides a means of assuring that your material is received by the ATCC patent depository in a timely and viable condition. **The date of deposit for patent purposes will be the date of transfer from interim storage, not the date it was received for interim storage.**

Safe Deposit

ATCC also offers a safe deposit service for those valuable biological materials for which patent protection has not been sought. Materials are stored in liquid nitrogen in strict confidence, and the depositor retains all proprietary rights. Multiple year agreements are available, along with restricted distribution only after depositor approval. If patent protection is sought at a later date, the biological material can be transferred to the Patent Depository by the original depositor. **The date of deposit for patent purposes will be the date of the transfer, not the date it was received in the Safety Deposit (see Interim Storage above).**

License To Patent Not Granted to ATCC

The deposit of a culture in ATCC does not grant to ATCC a license, either express or implied, to infringe the patent, and ATCC's release of cultures to others does not grant them a license, either express or implied, to infringe the patent. Recipients of cultures from ATCC are so informed using the following disclaimer in ATCC catalogs and reference guides: "This material is cited in a U.S. and/or other Patent and may not be used to infringe the patent claims."

Patent materials at time of deposit are not characterized

or [redacted]fied by ATCC. Release of a culture, [redacted] use of which may be [redacted]med in a patent, from the ATCC duri[redacted]the effective term of such patent, is not meant to carry with it, and does not grant, any license, express or implied, under any patent, to the right to use a culture(s) in any process described in a patent. Some patent holders may place further restrictions on the use of their patented material, and requestors of patent cultures are encouraged to contact the depositor prior to purchasing the culture from ATCC to ensure a thorough understanding of the conditions for use of the culture. Patent materials are identified as such throughout the catalogs.

Fees and Payment

Storage and informing: $1150
Storage and informing (for multiple sequences[1]): $1300
Storage and informing (for consortia): $1500 or quoted price

Viability Testing: In some cases, the cost to perform a viability test will be a quoted price and may be higher than the prices listed below. In these cases, the depositor will be notified and asked to provide written authorization for ATCC to perform the viability test at the quoted price.

- Microorganisms (bacteria, fungi, yeasts, seeds): $160
- Cell lines or hybridomas[2]: $320
- Vectors, libraries, plasmids, purified DNA: $220 or quoted price
- Consortia, embryos[3]: Quoted price
- Plant tissue cultures: $320
- Protozoa and algae (standard): $275
- Animal viruses (depositor supplies cells): $450
- Animal viruses (ATCC supplies cells): $550
- Animal viruses (animals or equipment needed): Quoted price
- Plant viruses: Quoted Price

[1] Maximum of 10 sequences per deposit - no exceptions.
[2] PCR-based mycoplasma testing required (included in viability fee).
[3] Please contact ATCC before sending embryos.

Other Fees:

- Preparation of additional ampules of microorganisms and return of sample for depositor approval: $500
- Permit application processing fee: $150

ATCC will accept checks drawn on U.S.A. bank; charge to Visa, MasterCard or American Express; or Transfer of Funds to: Account Number 003933990352, ABA # 052001633, American Type Culture Collection, c/o Bank of America, N.A., Baltimore, MD. Federal ID #53-0196548. ATCC will also accept Purchase Orders.

Please make checks payable to ATCC or American Type Culture Collection. Please write checks in English and in U.S. dollars.